REMARKS

Claims 1-17 and 21-29 are pending and are all rejected. Reconsideration of this application in light of the below remarks is respectfully requested. Also, it is to be appreciated that while reference may be made back to certain parts of the application (*e.g.*, page numbers, line numbers, Figs., etc.), that such referencing is not to be interpreted in a limiting manner (*e.g.*, to limit the scope of the clams and/or features therein to the particular portion(s) referenced), but is instead merely done for purposes of explanation, illustration and/or ease of understanding.

I. REJECTION OF CLAIMS 1, 2, 4-17 AND 21-29 UNDER 35 U.S.C. § 103(a)

Claims 1, 2, 4-17 and 21-29 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Benveniste (USPN 5,554,857) in view of Davis (USPN 3,711,706) and Vahrenkamp (USPN 4,315,153). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Independent claim 1 provides a mass analyzer comprised *of a first permanent magnet and a second permanent magnet and without electromagnets* that generates a substantially uniform magnetic field *but not an electric field*. Similarly, independent claim 21 provides generating a magnetic field from *only a first permanent magnet and a second permanent magnet and not generating an electric field*. Likewise, independent claim 29 provides a mass analyzer comprised of *a first permanent magnet and a second permanent magnet* that generates a substantially uniform magnetic field *but not an electric field*.

It is respectfully submitted that claims 1, 21 and 29 are not obvious over the cited references, at least, because the suggested combination is not proper. For example, Benveniste teaches the use of electromagnets rather than permanent magnets. In particular, the electromagnets in Benveniste have coils and are specifically employed to provide flexibility that allows a field to be adjusted (*See*, *e.g.*, Col. 2, lines 35-40; Col. 4, lines 24-27; Col. 5, line 54 – Col. 6, line 14). For example, the reference explicitly states:

> The strength of both the quadrapole and dipole fields are adjusted by a controller electrically coupled to the primary and additional current carrying coils of said magnet.
>
> A magnet constructed in accordance with the invention adds flexibility to the implanter. This flexibility allows the implanter to be used with different species ions at low energy implant levels. (Col. 2, lines 47-53).

Therefore Benveniste does not provide for permanent magnets as claimed.

Davis provides that a C-shaped magnet of a mass spectrometer may comprise a permanent magnet (Col. 2, lines 37-34). However, obviousness is not established by merely showing that claimed elements existed, independently, in the prior art. KSR v. Teleflex, 550 U.S. _____ (2007). One of ordinary skill in the art should be prompted to make the suggested combination, and when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious. KSR v. Teleflex, 550 U.S. _____ (2007).

It is respectfully submitted that the suggested combination is not proper at least because there is no apparent reason that would prompt one of ordinary skill in the art to make the combination. Moreover, modifying Benveniste as suggested to merely comprise the permanent magnets of Davis would render Benveniste unsuitable for its intended purpose (of adding flexibility – above), thus teaching away from the suggested combination. Further, while Davis does disclose that magnet 10 may be a permanent magnet, Davis acknowledges that a non-permanent (electromagnet) is preferred because it advantageously permits control of the magnetic field (Col. 2, lines 35-51). Thus, given Benveniste stated desire to provide flexibility and Davis' preference for using an electromagnet to provide this feature, it is respectfully submitted that the suggested combination is not proper at least because one of ordinary skill in the art would not be motivated to make the combination, the references teach away from making the suggested combination, and the suggested combination, if made, would render the resulting structure unsuitable for its intended purpose.

Vahrenkamp similarly fails to teach a mass analyzer comprising merely permanent magnets that do not generate an electric field. Vahrenkamp instead

teaches potential plates 24, 26, 28, 30 (Col. 3, lines 25-55); 64, 66, 68, 70 (Col. 4, line 50 – Col. 5, line 23); or 94, 96, 98, 100 (Col. 5, lines 30-35) of an ExB separator 20, 60 or 90, respectively, that can be biased to different voltages to develop different *electric fields* to select a desired mass species (Col. 3, lines 38-39). While Vahrenkamp does disclose that a permanent magnet structure may be included to provide a uniform magnetic field region (Col. 3, lines 6-19), the ExB separator must employ an electric field for tuning the separator for different species. In fact, Vahrenkamp specifically states that it is directed to the ExB separator for analyzing ion beams (Col. 1, lines 66-68). As such, any modification to and/or based on Vahrenkamp similarly does not teach the invention in claims 1, 21 and 29 nor render those clams obvious.

It will be appreciated that the use of permanent magnets as provided in claims 1, 21 and 21 allows a substantially uniform magnetic field of adequate magnitude to be produced in a small region (not attainable with electromagnets), and that this field applies a specific uniform force in a desired direction across a ribbon ion beam. Given the demands of modern ion implanters that implement ribbon ion beams this can not practicably be accomplished without using permanent magnets because, among other things, the footprint of the implanter would become unreasonably large.

It is respectfully submitted, therefore, that independent claims 1, 21 and 29 are non-obvious over the cited art. The other above mentioned rejected claims depend from claims 1, 21 or 29 and thus are also non-obvious over the cited art.

Withdrawal of this rejection is therefore respectfully requested.

II. REJECTION OF CLAIM 3 UNDER 35 U.S.C. § 103

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Benveniste (5,554,857) and Davis (USPN 3,711,706) and Vahrenkamp (4,315,153) in view of Horsky et al. (2004/0104682). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 3 depends from claim 1. Claim 1 is believed to be non-obvious over Benveniste and Davis and Vahrenkamp for the reasons set forth above, and Horsky et

al. fail to make up for the deficiencies of these references. Accordingly, claim 3 is likewise believed to be non-obvious over the cited art.

Withdrawal of this rejection is therefore respectfully requested.

III. CONCLUSION

For at least the above reasons, pending claims currently under consideration are believed to be in condition for allowance and notice thereof is respectfully requested.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, EATNP139US.

Respectfully submitted,
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